AVEN

Mighty Scope 5M
Instruction Manual

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Features

The Mighty Scope digital microscope provides a 10~200X adjustable magnification range, and the 500X model provides 500X(fixed) magnification. The built-in brightness adjustable LEDs provides proper illumination of the object. The magnified image can be viewed, captured and recorded directly from the computer screen with resolutions of: VGA (640x480) | XGA (1024x768) QXGA (2048x1536) | 5M(2592x1944).

Applications

Science Engineering
Work Dermatology
Detailed Repair
Assembly
Quality Control
Hobbies
Law Enforcement
Entertainment
& much more

Specifications

DIGITAL **MIGHTY SCOPE 5.0M** | 10X-200X	
IMAGE SENSOR	1/4" Color CMOS
EFFECTIVE PIXELS	5.0M (2592x1944)
SIGNAL OUTPUT	USB 2.0
FRAMES PER SECOND	640 x 480: 30fps 1024 x 768 : 30fps 2048 x 1536: 15fps
MAGNIFICATION	10x~200x
GAIN CONTROL	Auto Gain Control
SNAP SHOT MODE	Hardware & Software controllable
WHITE BALANCE	Automatic
POWER SOURCE	5VDC through USB port
O/S	Windows XP, Vista & 7
POWER CONSUMPTION	260mA (AVG)
LED LIGHT TYPE	6 White LEDs
WORKING DISTANCE	At 10x, 112mm | At 20x, 42mm At 30x, 19mm | At 40x, 8.5mm

Contents

Mighty Scope (1)
MicroViewer Software CD (1)
User manual (1)
Stand (1)

PC System Requirements

- **Chip set:** Pentium 4 3.0GHz CPU or equivalent, AMD Phenom II or above, Northbridge Intel® i945GZ or above
- **RAM:** 1024MB DDR or above
- **USB:** At least one USB 2.0
- **Graphics Card:** 2D/3D with Hardware Transform and lighting, 512MB VRAM VGA system and at least 16 bit color support
- **Monitor Resolution:** 1280x1024 or above
- **O/S:** Windows XP SP2 | VISTA | Windows 7
- Direct X 9.0c or above

PC System Requirements (Dual Scope)

- **Chip set:** Intel® Core™ 2 Duo or above / Intel G31 or above
- **Graphics Card:** NVIDIA® GeForce® 7 or above
- **RAM:** 1024 DDR2 800MHz or above
- **Storage space:** at least 30MB free space

Mac System Requirements

- **Chip set:** Intel® Processor
- **O/S:** Mac OS X 10.5 or later

Driver Installation

This device supports *"Universal Video Class"* driver, so no additional driver is required. Plug the camera in and Windows (Windows XP SP2, VISTA, and 7) will install the driver automatically.

Getting Started

Stand Assembly

Screw together vertical pole and base

Assemble the scope's 2-piece rack and pinion holder and tighten screw

Connect the scope holder to the vertical post and tighten set-screw

Place the Mighty Scope is the holder and adjust to desired working distance

Software Installation (PC)

1. Insert the software installation CD into the CD-ROM drive. The installation program will appear automatically on your screen. (If the installation program doesn't appear, open the MicroViewer folder and double click AutoRun.exe)
2. Click "Install MicroViewer 5MP" button **(Fig.1)**.

FIG. 1

****The Mighty Scope must be plugged into the computer to open and run the MicroViewer software. The MicroViewer will not run without a Mighty Scope connected.**

Software Installation (PC) cont.

3. Install the MicroViewer 5MP program and restart the computer.

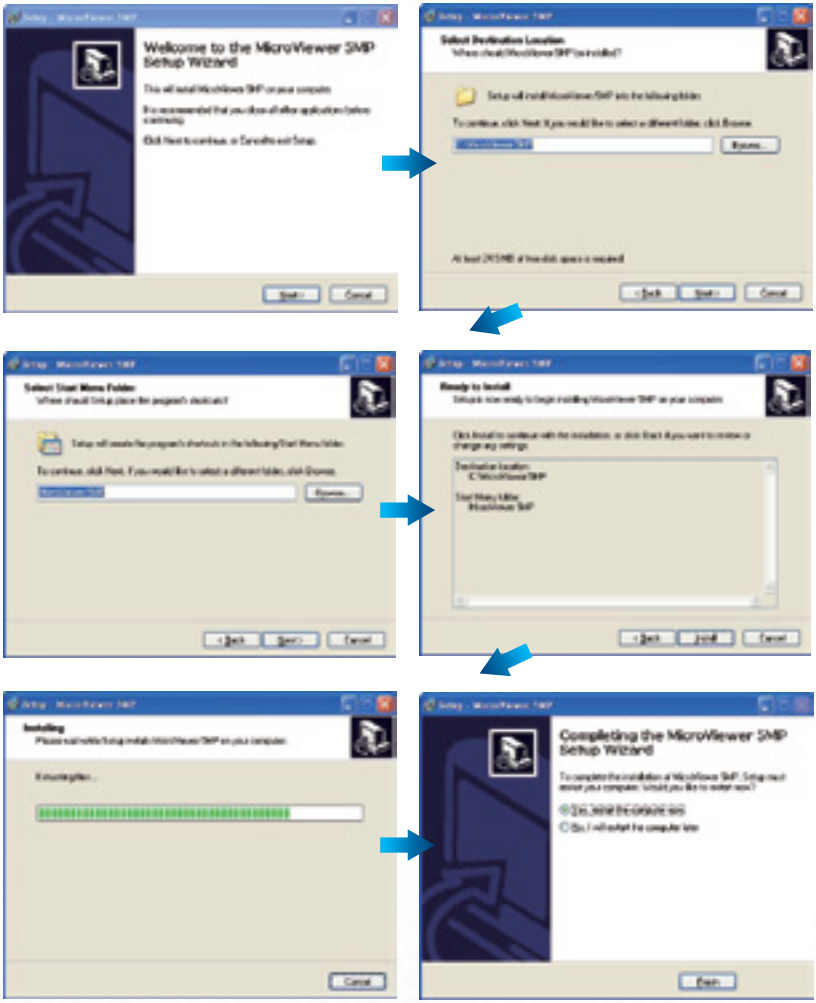


FIG. 2

FIG. 3

FIG. 4

FIG. 5

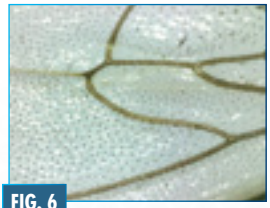


FIG. 6

FIG. 7

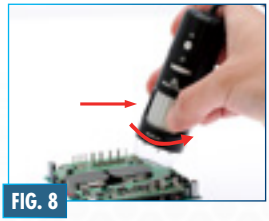


FIG. 8

Mighty Scope Controls

4. Connect the Might Scope to the computer **(Fig. 2).**
5. Double Click the *[MicroViewer 5MP]* software, the start-up screen will show up **(Fig. 3).**
6. Place the camera on or above the object to be viewed **(Fig. 4).**
7. Tilt the digital microscope slightly when viewing the object in order to get more depth of field to resemble a 3D image **(Fig. 5).**
8. The Mighty Scope can be used to get the desired magnification preferred by the user. The closer the Mighty Scope is to the object, the larger image will be and higher magnification **(Fig. 6).**
9. A clear focused image is obtained by adjusting the focus knob as well as changing the distance between the object and the Mighty Scope **(Fig. 7).**
10. If the image is blurred, adjust the focus knob to the right end and view the image of the object in lower magnification first **(Fig. 8).**

Mighty Scope Controls

11. When magnifying an object, adjust the focus knob slightly to the left or right, depending on the working distance, until image is clear **(Fig. 9).**
12. If the object has too much relief or if a higher magnification is unnecessary, lift the Mighty Scope a little bit and adjust the focus knob slightly to the right or left until the image is clear **(Fig. 10).**
13. LEDs can be adjusted by the light wheel. Turn the knob to the right to get a brighter light and to the left to get a dimmer light **(Fig. 11).**
14. When using high magnification to observe a specific area of the object, placing the digital microscope on the stand holder is recommended to obtain a clearly focused image **(Fig. 12).**
15. Use snapshot button to capture an image **(Fig. 13).**

FIG. 9

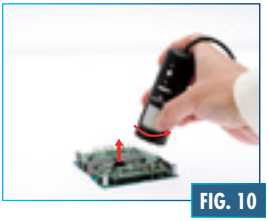


FIG. 10

FIG. 11

FIG. 12

FIG. 13

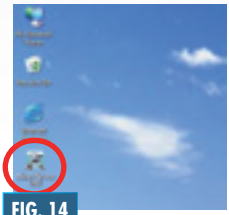


FIG. 14

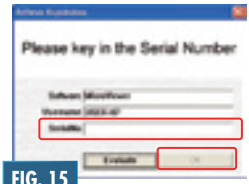


FIG. 15

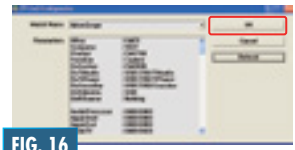


FIG. 16

MicroViewer Software

1. Double click the *[MicroViewer 5MP]* icon on your desktop **(Fig. 14)**.
   - Make sure the Mighty Scope is plugged into the USB port.
   - Key in the Serial Number *(which can be found on the outside of the CD envelope)* or just press the "Evaluate" button for a 30 day free trial **(Fig. 15)**.
   - "TV Card Configuration" window will show up the first time, click the "OK" button and double click the MicroViewer 5MP again **(Fig. 16)**.
2. The MicroViewer 5MP window will show up and you should see the live image from the Microscope **(Fig. 17)**.

***The MicroViewer 5MP will choose the appropriate video format automatically by detecting the resolution of the monitor. If the resolution is 1280x1024 (or above), the default video format is 1024x768. If the resolution is 1024x768(or below), the default video format is 640x480.*

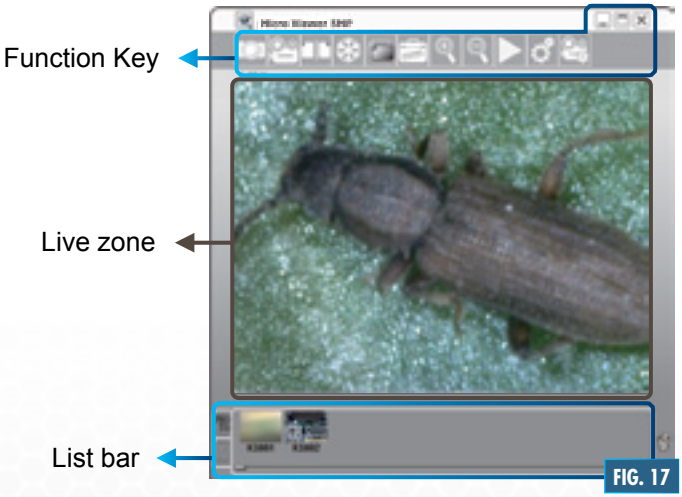


FIG. 17

MicroViewer Menu

Snapshot
Take a picture.
(Saved as a BMP file)
Shortcut key: F3
**The max resolution for software snapshot is 2048x1536.*

Record
Capture a movie.
(Saved as an AVI video file)
Shortcut key: F4

Compare
Compare a live image with a picture or video, compare two pictures or compare two live image from two microscopes
(Please see the Compare Section for more detail)
Shortcut key: C

Freeze
Freeze the live image on the screen.
Shortcut key: F

Save clipboard
Copy the live image to the clipboard.

Measurement
Measure lines, circles, angles, rectangles, triangles or radii.
(Please see the Measurement Section for more detail)
Shortcut key: M

Zoom in/out
Select the zoom-in and zoom-out function on a live image or on captured pictures. The maximum magnification is 6x. The arrow keys on the keyboard will move the image.
Shortcut key: +/-

Play
Playback the last recorded video.

Video Setup
The setup window.
(Please see the Video Setup Section for more detail)
Shortcut key: V

Video Quality
Change the video value for brightness, contrast and saturation.

Zoom screen
Click "Zoom screen icon" or double click the live image, it will switch to full screen mode.

Power off
Close MicroViewer 5MP.
Shortcut key: X

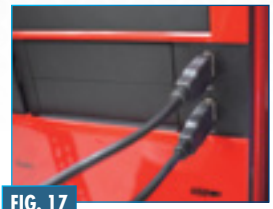


FIG. 17

1.If you close MicroViewer 5MP on compare mode, it will automatically enter compare mode next time.

2.The resolution of the 2nd microscope will change automatically when you change the resolution of the first microscope.

Micro Viewer Comparison Mode

1. Plug two microscope USB cables into the PC USB ports **(Fig. 17)**.
2. Click the Compare button, and the compare window will appear on the screen. The live image shows in the left zone **(Fig. 18)**.

   For the best results screen resolution requirement should be at least 1440x900 pixel
3. Click the 2nd Camera button to show the live image of the second Mighty Scope.

   The second Mighty Scope only supports Snapshot, Recording, Preview Image, and Freeze functions.
4. The compare window also supports dragging any pictures to the left and right sides to compare two existing pictures.
5. Click (Go Back button) or (Compare button) to return to normal mode.

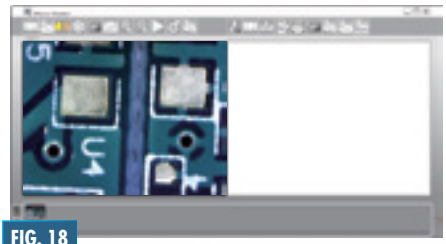


FIG. 18

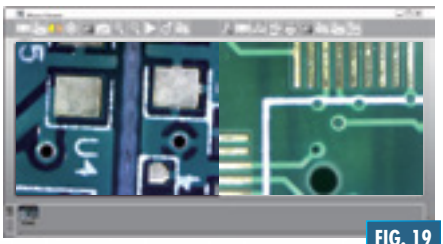


FIG. 19

MicroViewer – Compare Menu

Camera 2
Enable/Disable the image of the second microscope.

Snapshot
Take a picture.

Save BMP HR
Combine the two live images horizontally and take a picture.
** It doesn't support combining live image with an existing image.*

Save BMP VT
Combine the two live images vertically and take a picture.
** It doesn't support combining live image with an existing image.*

Print Dual Camera
Print live images from two Microscopes.

Save clipboard
Copy the live image to clipboard.

Video Setup
Change the video value for brightness, contrast and saturation.

Save AVI 2
Capture AVI video files from the 2nd microscope .

Save AVI HR
Combine the two movies horizontally and save a movie.
** It only supports 640*480 resolution.*

FAQ

1. Why does the combined picture become distorted when I preview the image?

A: It will distort the image because of the ratio on the screen. Please go to the saved picture location and check the picture to see if it distorted.

2. Can I print the combined image full page?

A: Yes, go into the printer dialog box and set it to landscape orientation.

3. Does the 2nd microscope support full-screen function?

A: No, only the 1st microscope supports full-screen function.

4. Can I switch the 1st microscope and 2nd microscope?

A: Yes. Disable the 2nd microscope, and choose the source in the video setup window.

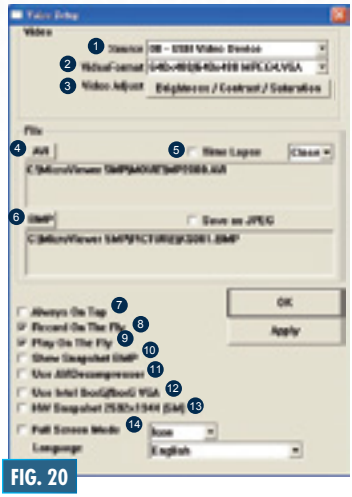


FIG. 20

Video Setup - Overview

Click the Setup button for the video dialogue box **(Fig. 20)**.

1. **Source:** User can to choose the image source if there is multiple microscopes connected to the PC.
2. **Video Format:** Supports three resolution options: 640x480 | 1024x768 | 2048x1536.
   **Both the Snapshot and Record format will be changed*
3. **Video Adjust:** Manually change values for brightness, contrast, and saturation.
4. **AVI:** Set up the path to save videos.
5. **Time Lapse:** Check the box and select the time-lapse rate. (i.e. If you choose"60:1" only one second of every 60 seconds will be recorded.)
   **If you choose the time-lapse function, please make sure the recording time is longer than the ratio time. i.e.: Choose "60:1", the real recording time must be longer than 60 seconds.*
6. **BMP:** Set up the path to save pictures.
   **If you want to save JPEG files, please check the "Save as JPEG" box.*
7. **Always On Top:** Check this box so the MicroViewer 5MP window is always on the top.
8. **Record On The Fly:** Record the video immediately when button is pressed.
   **If the box isn't marked, you have to set up the file name and saving location before recording.*
9. **Play On The Fly**: Play the latest video immediately.
   **If the box isn't marked, you have to choose a video file to play.*
10. **Show Snapshot BMP:** After snapshot, the preview window will appear.
11. **Use AVI Decompressor:** Corrects possible image distortion in Window XP SP2 or Older.
    ****DO NOT mark this box if it is Windows XP SP3 or above***
12. **Use Intel 8xxG/9xxG VGA:** Corrects possible image distortion with Intel chip sets.
    **The resolution will be limited to 1024x768.*
13. **HW Snapshot 2592x1944:** To save images with maximum resolution of 2592x1944(5MP)when you click the hardware snapshot button.
    **It can take 5~6 seconds to save a picture, please not to move the microscope.*
14. **Full Screen Mode:** To Start MicroViewer 5MP in full-screen mode automatically.
    - **4:3:** Live video zone will remain in a 4:3 aspect ratio. This mode is necessary for the measurement function.
    - **FULL:** The entire screen will display live video. The aspect ratio may not be correct, so live images my appear distorted.
    - **ICON:** The Screen will be filled with the MicroViewer 5MP window, so all function buttons will be visible. In this mode,the video image will be expanded and it is not correct for the measurement function.

Preview – Picture Mode

Drag the picture from the list bar to the live zone or just double click the picture in the list bar. The Image will show in the live zone for editing. **(Fig. 21)**.

Drawing mode
The Drawing mode button opens Microsoft Paint to draw on the picture. After editing, close Microsoft Paint, and the image will update automatically.

Save file
Click this button to save as a new file. New file name will be renamed by date and time.
Shortcut key: S

Compare
Compare a live image with a picture or video, compare two pictures or compare two live image from two microscopes
(Please see the Compare Section for more detail)
Shortcut key: C

Delete
Click the Delete button to delete an image or video. If you want to recover this file, just click Save file button. To delete files, you can also left click the picture in the list bar and drag to the Delete icon.
Shortcut key: D

Print File
Print this picture. Opens printer dialogue box.

Measurement
Measure lines, circles, angles, rectangles, triangles or radii.
(Please see the Measurement Section for more detail)
Shortcut key: M

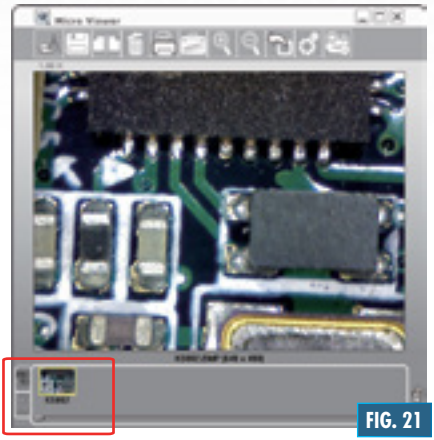


FIG. 21

Zoom in/out
Select the zoom-in and zoom-out function on a live image or on captured pictures. The maximum magnification is 6x. The arrow keys on the keyboard will move the image.
Shortcut key: +/-

Go Back
Go back to live mode.

Video Setup
Opens the video setup window.
(Please see the Video Setup Section for more detail)
Shortcut key: V

Video Quality
Change the video value for brightness, contrast and saturation.

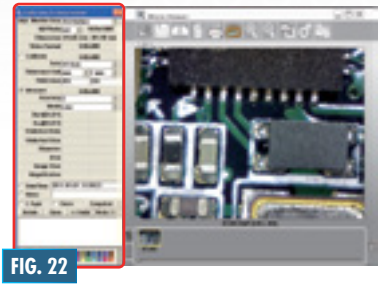
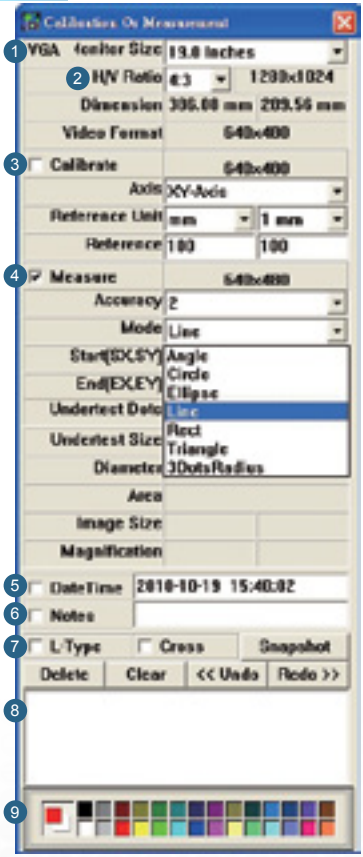


FIG. 22



Measuring -Overview

Click the Measurement button to open the measurement window. The image will be frozen. You can calibrate or measure the frozen image **(Fig. 22)**.

1. **VGA monitor size:** Select the monitor size.
2. **H/V ratio:** Select the monitor's correct aspect ratio to insure correct measurements
3. **Calibrate:** Adjust the calibration.
   - **Calibrate axis:** X axis /Y axis /X-Y axis.
   - **Reference Unit:** Please select a unit of measurement for calibration. There are three units: mm/inch/mil
4. **Measure:** Choose the measurement type.
   - **Accuracy:** The number is accurate up to nine decimal points.
   - **Mode:** Select a measurement mode from the following options: Angle | Circle | Ellipse | Line | Rectangle | Triangle | 3DotsRadius.
5. **Data of the measurement.**
6. **Remarks:** The mode supports Date, Time and Notes for a measured image.
7. **Ruler guides:** Check the L-type or Cross if you want this function.
8. **Record history**: Record the measurement actions. It allows the user to delete a record or clear all history records.
9. **Choose the color of the line and words.**

**After finishing the measurement, click the Snapshot button Snapshot or save button to save the measured picture.*

Measuring - Calibration

1. Place a scale under the camera and adjust the focus knob until the image is sharp **(Fig. 23)**.
2. Click the "Snapshot" button to capture the picture, double click this picture in the list bar.
3. Click the "Measurement" button to open the Measurement Window.
   **You must calibrate again if you change the distance, magnification, or resolution.*
4. Check "Calibrate" box, and choose the "Reference Unit" that matches your scale and is the largest dimension visible on your snapshot. *(i.e. The largest dimension available between 3 centimeter and 4 centimeter is 10 millimeter. Therefore, we choose the 10 mm as the "Reference Unit")*
5. Click and hold the right button of the mouse at the 3 centimeter line and drag the cursor to the 4 centimeter line **(Fig. 24)**.
6. Release the right button of the mouse, and the calibration is done. **(Fig. 25)**.
7. Now you can begin measuring. Double click the picture in the list bar or just place the microscope on the object and click the "Measurement" button.

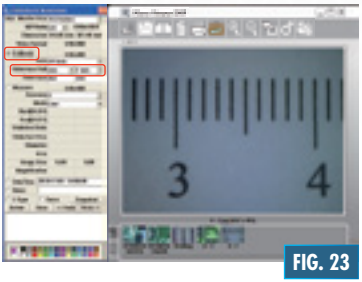


FIG. 23

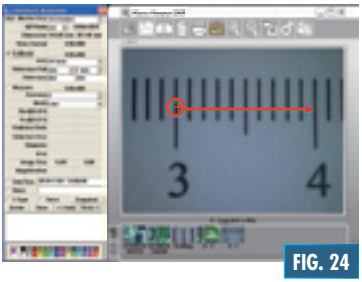


FIG. 24

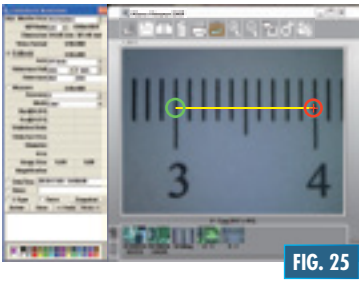


FIG. 25

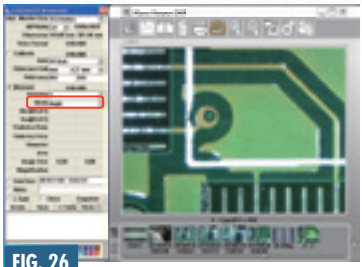


FIG. 26

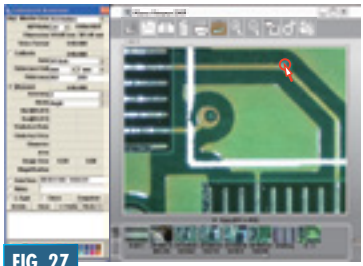


FIG. 27

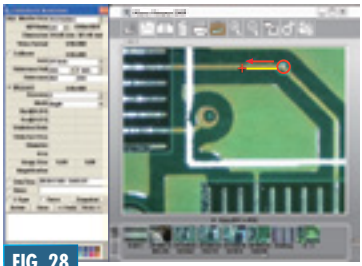


FIG. 28

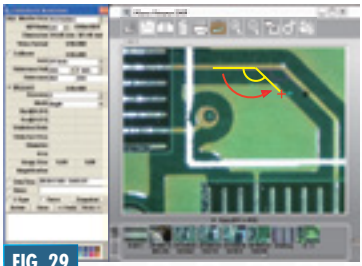


FIG. 29

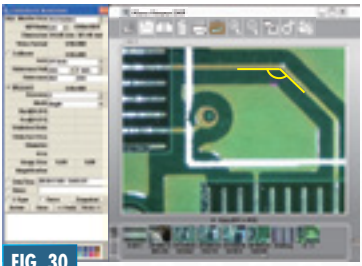


FIG. 30

Measuring - Angles

1. Click the "Measurement" button to open the Measurement Window.
2. Click the check box next to "Measure." **(Fig. 26)**
3. Select the mode "Angle" from the drop down.
4. Set the "Accuracy" to the number of decimal points displayed in the measurement.
5. Click and hold the right button of the mouse at the first point. **(Fig. 27)**
6. Drag to the left side and release the right button of the mouse. **(Fig. 28)**
7. Hold the right button of the mouse and drag to the other side counterclockwise. **(Fig. 29)**
8. Release the right button of the mouse, and the angle measurement will appear. **(Fig. 30)**

Measuring - Circle/Ellipse

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box **(Fig. 31).**
3. Select the"Circle" Mode for circle or "Ellipse" mode for ellipse.
4. Check the "Cross" function to display crosshairs.
5. Hold the right button of the mouse at the upper left of the object **(Fig. 32).**
   **You can aim easily by aligning the X axis cross line with the top of the object and aligning the Y axis cross line with the left of the object.*
6. Drag to the lower right of the object **(Fig. 33).**
   **You can aim easily by aligning the X axis cross line with the bottom of the object and aligning the Y axis cross line with the right of the object.*
7. Release the right button of the mouse **(Fig. 34).**
   - The Circle measurement will display 2 measurements. The "D" means diameter and the "A" means area.
   - The Ellipse measurement will display 3 measurements. The "D1" means X axis diameter, "D2"means Y axis diameter, and "A" means area.

FIG. 31

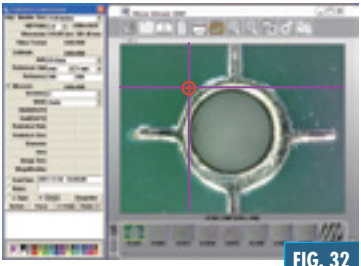


FIG. 32

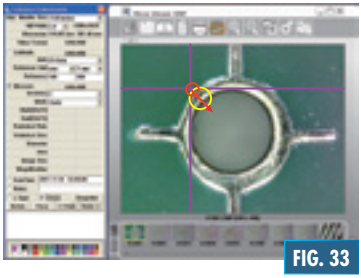


FIG. 33

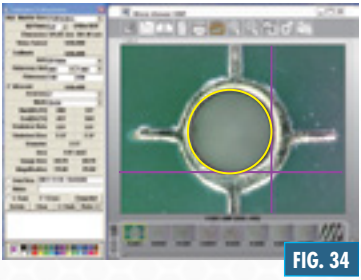


FIG. 34

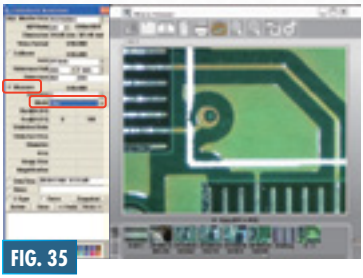


FIG. 35

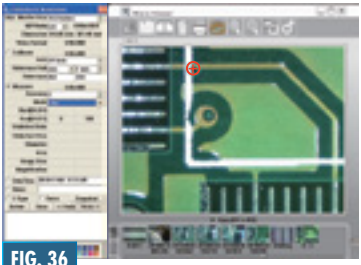


FIG. 36

FIG. 37

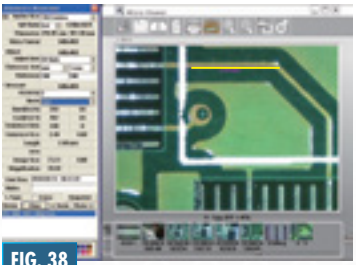


FIG. 38

Measuring - Line

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box. **(Fig. 35).**
3. Select the "Line" Mode.
4. Hold the right button of the mouse at the first measurement point. **(Fig. 36).**
5. Drag the mouse to the sending point of the measurement **(Fig. 37).**
6. Release the right button of the mouse,and the line will appear. The number is the length in the calibrated units of measure **(Fig. 38).**

Measuring - Rectangle

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box,
3. Select the "Rectangle" Mode **(Fig. 39).**
4. Click and hold the right button of the mouse at corner of the object **(Fig. 40).**
5. Drag to the lower right of the object **(Fig. 41).**
6. Release the right button of the mouse and the rectangle will appear. The number is the area of the triangle (length x width = area) **(Fig. 42).**

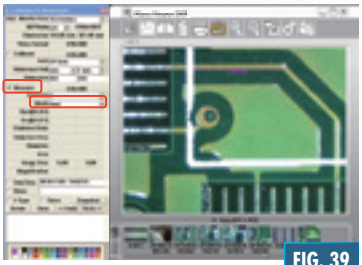


FIG. 39

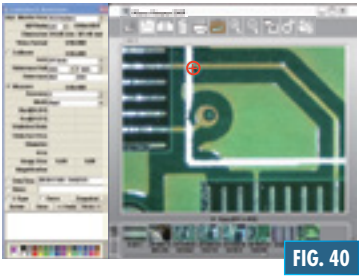


FIG. 40

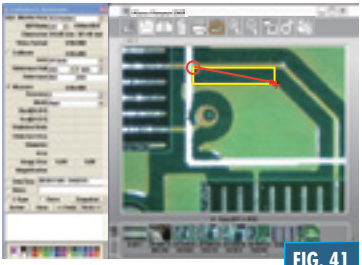


FIG. 41

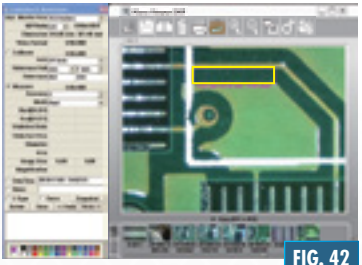


FIG. 42

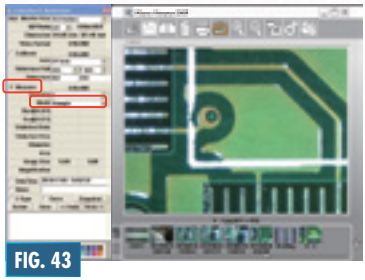


FIG. 43

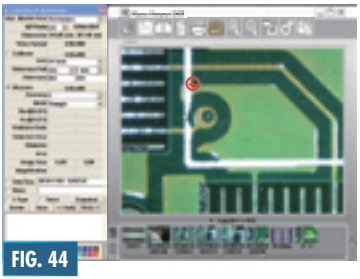


FIG. 44

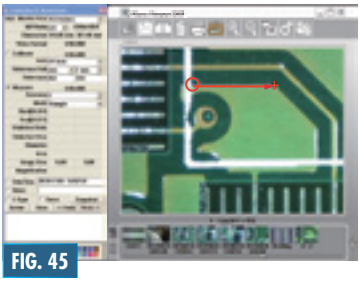


FIG. 45

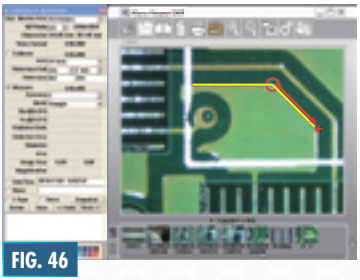


FIG. 46

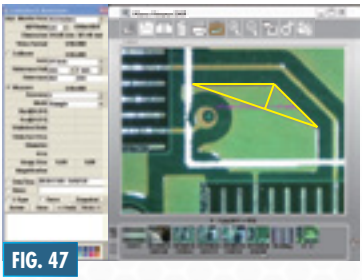


FIG. 47

Measuring - Triangle

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box.
3. Select the "Triangle" Mode. **(Fig. 43).**
4. Click and hold the right button of the mouse at the first point of the object. **(Fig. 44).**
5. Drag to the second point and release. **(Fig. 45).**
6. Click and hold the right button of the mouse again at the second point of the object **(Fig. 46).**
7. Release the right button of the mouse, and the Triangle measurement will appear. The number displayed is the area of the triangle (width x length / 2 = area). **(Fig. 47).**

Measuring - Radius/Arc

1. Click the “Measurement” button to open the Measurement Window.
2. Check the “Measure” box.
3. Select the “3DotRadius” Mode **(Fig. 48).**
4. Click and hold the right button of the mouse at the first point of the arc **(Fig. 49).**
5. Drag to the second point of the arc and release **(Fig. 50).**
6. Click and hold the right button of the mouse again at the second point of the arc , then drag to the third point of the arc **(Fig. 51).**
7. Release the right button of the mouse, and the arc measurement will appear. The “R” means radius , “A” means angle, and the “L” means arc **(Fig. 52).**

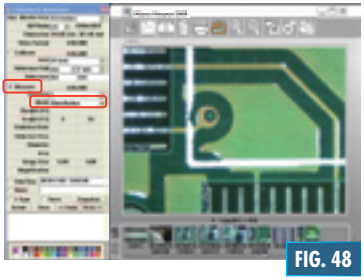


FIG. 48

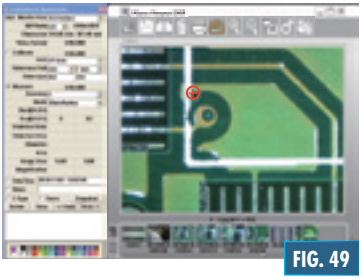


FIG. 49

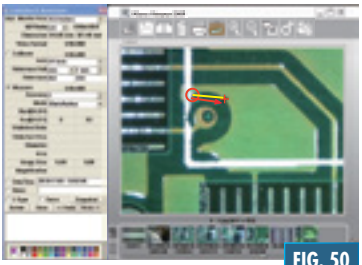


FIG. 50

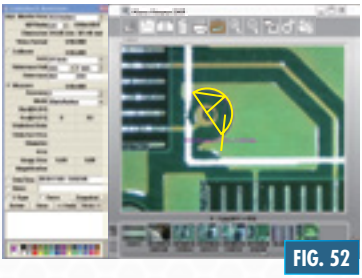


FIG. 52

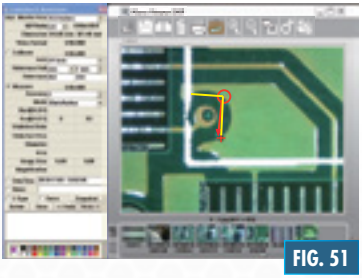


FIG. 51

Software Installation (Mac)

1. Insert the software installation CD into the CD-ROM drive. The installation program will appear automatically on your screen.
2. Click “MicroViewer” icon to install the software.

****The Mighty Scope must be plugged into the computer to open and run the MicroViewer software. The MicroViewer will not run without a Mighty Scope connected.**

MicroViewer Software (Mac)

1. Double click the *[MicroViewer]* icon on your desktop **(Fig. 53)**.
   - Make sure the Mighty Scope is plugged into the USB port.
2. The MicroViewer 5MP window will show up and you should see the live image from the Microscope **(Fig. 54)**.

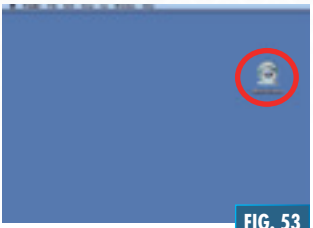


FIG. 53

***The MicroViewer 5MP will choose the appropriate video format automatically by detecting the resolution of the monitor. If the resolution is 1280x1024 (or above), the default video format is 1024x768. If the resolution is 1024x768(or below), the default video format is 640x480.*

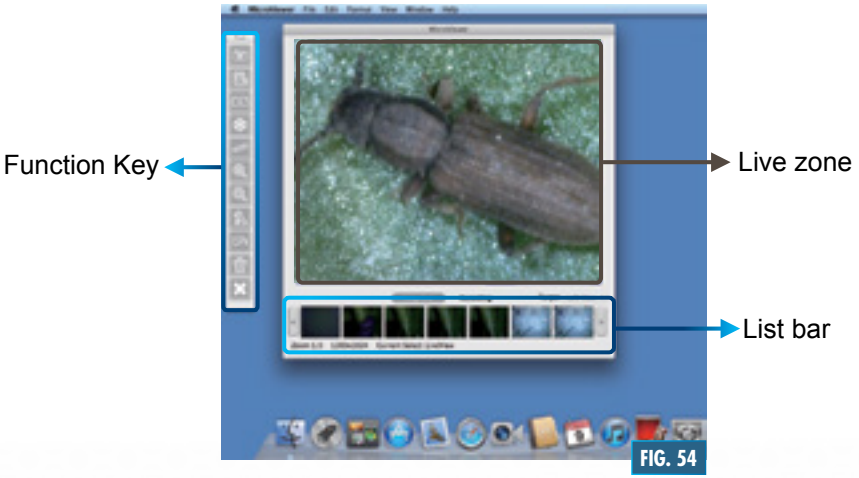


FIG. 54

MicroViewer Menu (Mac)

Snapshot
Take a picture.
(Saved as a JPG file)

Record
Capture a movie.
(Saved as an MOV video file)

Compare
Compare a live image with a picture or video, compare two pictures or compare two live image from two microscopes
(Please see the Compare Section for more detail)

Freeze
Freeze the live image on the screen.

Measurement
Measure lines, circles, angles, rectangles or triangles
(Please see the Measurement Section for more detail)

Zoom in/out
Select the zoom-in and zoom-out function on captured pictures.

Setup
The setup window.
(Please see the Video Setup Section for more detail)

Return to live mode
Back to the live mode

Delete
Click the file(picture/video) to delete, and click the ***Delete icon***. The file will be erased.

Exit
Close MicroViewer.

Micro Viewer Comparison Mode (Mac)

1. Plug two microscope USB cables into the USB ports.
2. Click the Compare button and the compare window will appear on the screen. The live image shows on the left side **(Fig. 55)**.

   For the best results screen resolution requirement should be at least 1440x900 pixel
3. The live image shows in the left side. You can select the "Target view" and double click a picture or a video in the list bar. The file will show up on the target view.
4. The left side also supports freeze function to compare two images **(Fig. 56)**.
5. The compare window also supports comparing two existing pictures.
6. Click the Compare button to return to live mode when viewing saved images.

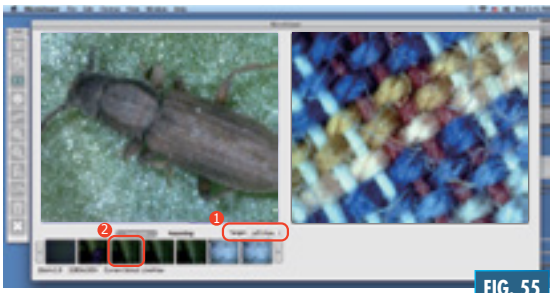


FIG. 55

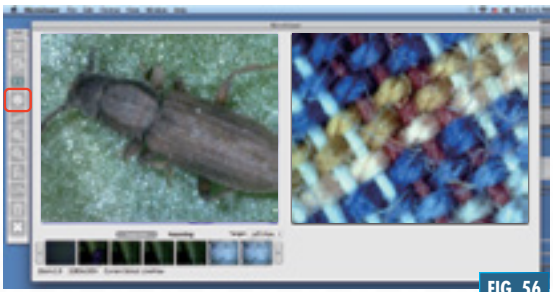


FIG. 56

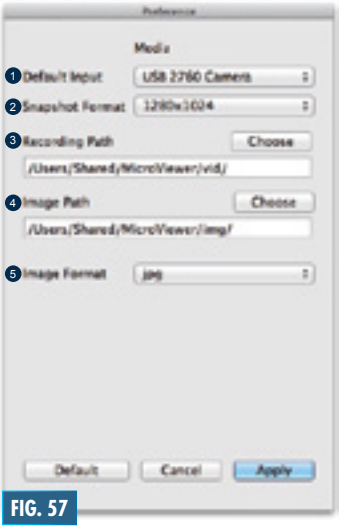


FIG. 57

Media Setup - Overview (Mac)

Click the Setup button for the media dialogue box **(Fig. 57)**.

1. **Default Input:** Select the desired video source if there is more than one microscope/camera connected to the computer.
2. **Snapshot Format:** Choose which size images and videos will be saved at: 640x480 or 1280x1024.
   **Both the Snapshot and Record format will be changed*
3. **Recording Path:** Set up the location to save videos.
4. **Image Path:** Set up the location to save images.
5. **Image Format:** Choose the default image format.

Measuring -Overview (Mac)

Click the Freeze button to freeze the live image or double click a image in the list bar. The image will be frozen. You can only calibrate or measure the frozen image. Click the Measurement button to open the measurement dialogue window **(Fig. 58)**.

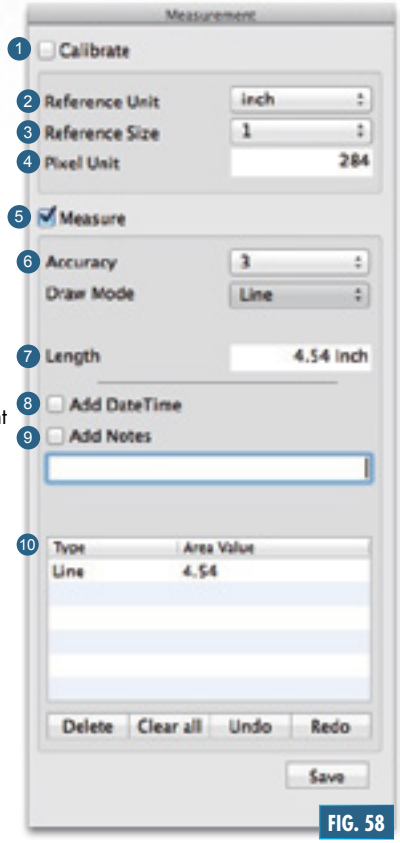


FIG. 58

1. **Calibrate:** Check "Calibrate" first before measurement to set up proper reference points to measure.
2. **Reference Unit:** Select the measurement unit for calibration. There are three different units: mm/inch/mil
3. **Reference Size:** Select the unit of measurement or calibration.
   **Using a scale at the chosen magnification allows for the most accurate measuring.*
4. **Measure:** Check "Measure" to enter measurement mode.
5. **Accuracy:** The number of decimal points the measurement is accurate to. Supports up to nine decimal points.
6. **Draw Mode:** Choose the type of measuring: Angle | Circle | Ellipse | Line | Rectangle | Triangle.
7. **Length/Angle/Area:** Shows the latest measurement data.
8. **Add Date Time:** Add the date and time information to the saved image.
9. **Add Notes:** Add notes to the saved image.
10. **Data of the measurement:** Records the measurement actions for the image. It allows users to delete a record or clear all records.

**After finishing the measurement, click the Save button to save the measured picture.*

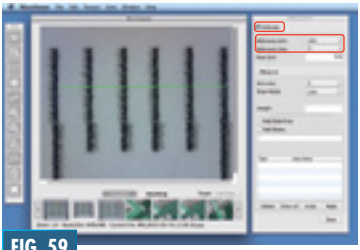


FIG. 59

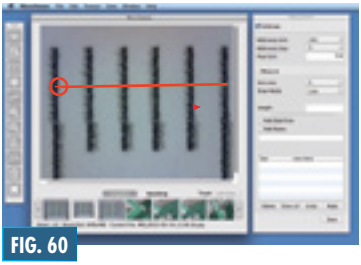


FIG. 60

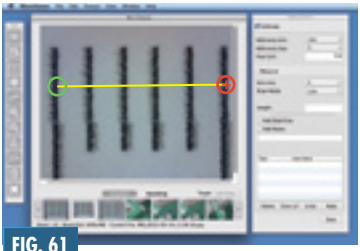


FIG. 61

Measuring - Calibration (Mac)

1. Place a scale under the camera and adjust the focus knob until the image is sharp **(Fig. 59)**.
2. Click the "Snapshot" button to capture the picture, double click this picture in the list bar.
3. Click the "Measurement" button to open the Measurement Window.
   **You must calibrate again if you change the distance, magnification, or resolution.*
4. Check "Calibrate" box, and choose the "Reference Unit" that matches your scale and is the largest dimension visible on your snapshot. *(i.e. The largest dimension available between 3 centimeter and 3.5 centimeter is 5 millimeter. Therefore, we choose the 5mm as the "Reference Unit")*
5. Click and hold the mouse button at the 3 centimeter line and drag the cursor to the 3.5 centimeter line **(Fig. 60)**.
6. Release the mouse button, and the calibration is complete. **(Fig. 61)**.
7. Now you can begin measuring. Double click the picture in the list bar or just place the microscope on the object and click the "Measurement" button.
8. Click the to return to live mode.

Measuring - Angles (Mac)

1. Click the "Measurement" button to open the Measurement window.
2. Change the draw mode to "Angle."
3. Click the check box next to "Measure." **(Fig. 62)**
4. Set the "Accuracy" to the number of decimal points displayed in the measurement.
5. Select the mode "Angle" from the drop down.
6. Click the mouse button at the first point. **(Fig. 63)**
7. Click at the second point or corner of the angle and release the button of the mouse. **(Fig. 64)**
8. Double click the mouse button at the third point. **(Fig. 65)**
9. The measurement of the angle will appear on the image as well as in the bottom of the "Measurement Dialogue Box." **(Fig. 66)**

FIG. 62

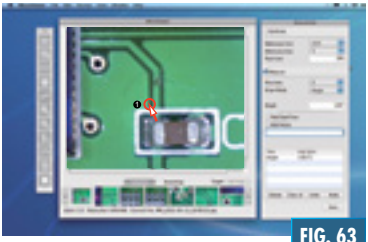


FIG. 63

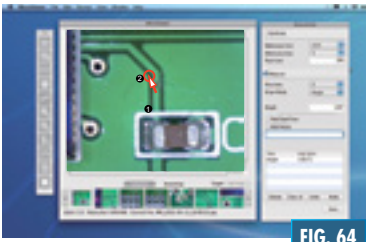


FIG. 64

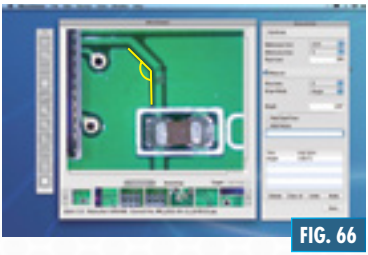


FIG. 66

FIG. 65

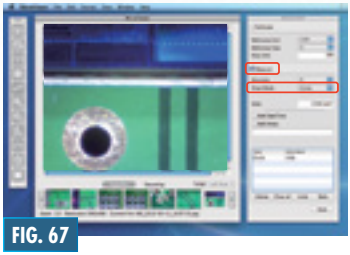


FIG. 67

FIG. 68

FIG. 69

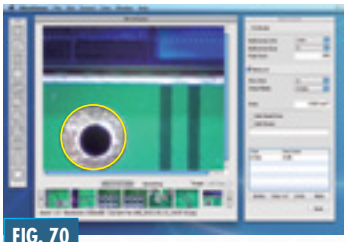


FIG. 70

Measuring - Circle/Ellipse (Mac)

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box **(Fig. 67).**
3. Select the"Circle" Mode for circle or "Ellipse" mode for ellipse.
4. Click and hold the button of the mouse at the center of the object **(Fig. 68).**
5. Drag to the outer edge of the object **(Fig. 69).**
6. Release the mouse button **(Fig. 70).**
   - The Circle measurement will display 2 measurements. The "R" means radius and the "A" means area.
   - The Ellipse measurement will display 3 measurements. The "Major Axis / Minor Axis = Area.

Measuring - Line (Mac)

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box. **(Fig. 71).**
3. Select the "Line" Mode.
4. Hold the mouse button at the first measurement point. **(Fig.72).**
5. Drag the mouse to the sending point of the measurement **(Fig. 73).**
6. Release the mouse button,and the line will appear. The number is the length in the calibrated units of measure **(Fig. 74).**

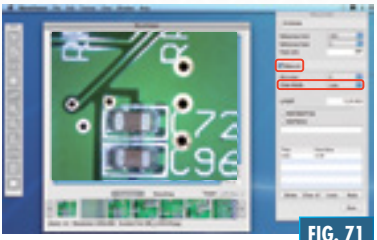


FIG. 71

FIG. 72

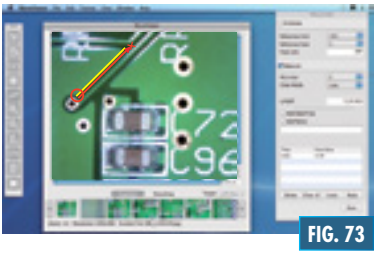


FIG. 73

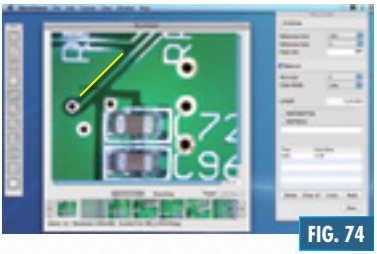


FIG. 74

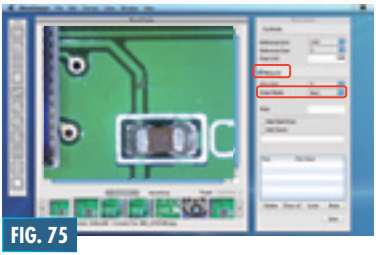


FIG. 75

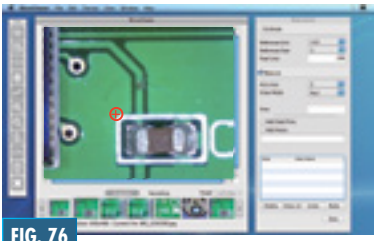


FIG. 76

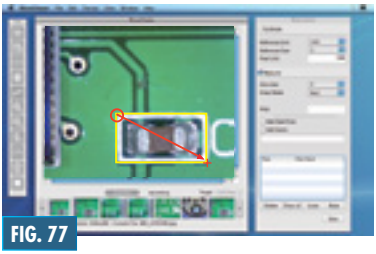


FIG. 77

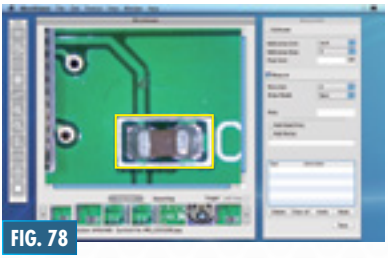


FIG. 78

Measuring - Rectangle (Mac)

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box,
3. Select the "Rectangle" Mode **(Fig. 75).**
4. Click and hold the mouse button at corner of the object **(Fig. 76).**
5. Drag to the opposite corner (diagonally) of the object **(Fig. 77).**
6. Release the mouse button and the rectangle will appear. The number is the area of the triangle (length x width = area) **(Fig. 78).**

FIG. 79

FIG. 80

FIG. 81

FIG. 82

Measuring - Triangle (Mac)

1. Click the "Measurement" button to open the Measurement Window.
2. Check the "Measure" box.
3. Select the "Triangle" Mode. **(Fig. 43).**
4. Click and hold the mouse button at the first point of the object. **(Fig. 44).**
5. Drag to the second point and release. **(Fig. 45).**
6. Click and hold the mouse button again at the second point of the object **(Fig. 46).**
7. Release the mouse button, and the Triangle measurement will appear. The number displayed is the area of the triangle (width x length / 2 = area). **(Fig. 47).**

FAQ

Q. After inserting the software installation CD into the CD-ROM drive, why doesn't the install start automatically?

A: Due to the computer's system security, many system's software disables the CD-R/USB Auto run function. Please double click the CD-ROM drive on your computer, and click the AUTORUN.EXE file.

Q. Why does the image lag after I check the Use AVI Decompressor box on the Video Setup window?

A: The Use AVI Decompressor function doesn't support Windows XP SP3 or above.

Q. Why is the measurement number incorrect?

A: You need to use the Calibrate function on the measurement window before making a measurement. Also if you change the focal distance or height of the object you will need to use the Calibrate function again.

Q. Why does the monitor "twinkle" under the measurement mode?

A: Set up the system using the following steps: Start>Control Panel>Home>System Advanced>Performance>Setting. Deselect the "Show shadows under windows" and "Show window contents while dragging."

Q. Why does the recording file show an error message when I open the time-lapse function?

A: If you open the time-lapse function, please make sure the recording time is longer than the ratio time. i.e. Choose 60s:1s, the real recording time must be longer than 60 seconds.

Q. Why do the LED lights will go out automatically while recording?

A: Under Windows 7, the "power saving" function will turn off the LED lights automatically, please set the system by the following steps: Start>Control Panel>System and Security>Power Options>Select a power plan. Click the "Show additional Plans" arrow, and choose the "High performance."

Q. After installing the MicroViewer 5MP, why doesn't the MicroViewer 1.3M program work?

A: The version you are running might be out of date. Please install the upgrade version of MicroViewer 1.3MP by the following steps:

- Insert the MicroViewer 5MP CD into the CD-ROM drive.
- Click the "Install MicroViewer 1.3MP" button on the installation program and the latest MicroViewer 1.3MP will install automatically.

Q. I can't install the MicroViewer because of the antivirus software protection. How do you solve this problem?

A: Your antivirus software may quarantine the MicroViewer because the software thought it was a virus. Try adding MicroViewer to your antivirus white list or try uninstalling the antivirus software, install the MicroViewer, and install your antivirus software again.

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